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**Effects-Based Operations: Old Doctrine, New Words**

**by**

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**A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Department of Joint Military Operations.**

**The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.**

**Signature: \_\_\_\_\_**

**31 October 2007**

## **Abstract**

### *Effects-Based Operations: Old Doctrine, New Words.*

The recent release of the new Commander's Handbook for an Effects-Based Approach to Joint Operations has rekindled the debate on the necessity of incorporating Effect-Base Operations (EBO) into doctrine. The foundation for this paper is based on three fundamental points. First, we have been conducting military operations to achieve effects in the past. Second, the current consternation is actually about the System-of-Systems Approach, not necessarily for or against the EBO concept. Third, total reliance on this System-of-Systems Approach is not the panacea to all military operations; in fact to do so could be detrimental to an Operational Commander. Lastly, this paper concludes that the Commander's Handbook for an Effects-Based Approach to Joint Operations should be withdrawn, that precise terminology must be used when developing doctrine or processes, and the System-of-Systems Approach should be used as part of the IPB process and indoctrinated at the service level.

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## INTRODUCTION

The release of the new Commander's Handbook for an Effects-Based Approach to Joint Operations on 24 February 2006<sup>1</sup>, has rekindled the debate on the necessity of incorporating Effect-Base Operations (EBO) into doctrine. The Message to the Joint Warfighters in this document indicates that the Handbook is provided for the user in a pre-doctrinal state and will be used to capture value-added ideas.<sup>2</sup> Further the Handbook professes that the Effect-Based Approach is complementary in nature rather than being prescriptive to the current mission planning processes.<sup>3</sup>

This paper will prove that no more time and effort should be spent on trying to codify Effect-Based Operations (EBO). The premise of this discussion on EBO is made on three fundamental positions. First, we have been conducting operations where the objective has been an effect for at least half a century. Second, the current debate is really in reference to the System-of-Systems Approach (SOSA) and the lack of precision in the terminology, not necessarily for or against EBO. Lastly, total reliance on this SOSA is not the panacea to all military operations; in fact to do so could be detrimental to an Operational Commander by wasting precious assets.

Using the Commander's Handbook for an Effects-Based Approach to Joint Operations, writings from various opponents and proponents to EBO, and historical citations it will be demonstrated that we as a profession need to re-evaluate this emerging doctrine and ensure it has clearly defined concepts, traits, and precepts.

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<sup>1</sup> Joint Warfighting Center, Joint Concept Development and Experimentation Directorate, *Commander's Handbook for an Effects-Based Approach to Joint Operations*, (Suffolk, VA: SJFH, 24 February 2006), Message to the Joint Warfighters.

<sup>2</sup> Ibid., Forward, Message to the Joint Warfighters.

<sup>3</sup> Ibid., vii.

## DEFINITION

Charles Kamps, in his Doctrinal Notice to Airmen, quotes the 2004 Joint Forces Command Glossary for Effects-Based Operations (EBO) as “a process for obtaining a desired strategic outcome or ‘effect’ on the enemy, through the synergistic, multiplicative, and cumulative application of the full range of military and nonmilitary capabilities at the tactical, operational, and strategic levels”.<sup>4</sup>

The current Joint Forces Command Glossary provides the following definitions:

**Effect** - The physical, functional, or psychological outcome, event, or consequence that results from specific military or non-military actions.

**Diplomatic, Information, Military and Economic (DIME)** - Areas of national power that are leveraged in "effects-based" operations against an adversary's vulnerabilities identified by Operational Net Assessment, and targeted against his will and capability to conduct war.<sup>5</sup>

As a point of departure for this discussion, then, EBO is the use of the Diplomatic, Information, Military, and Economic (DIME) areas of national power or influence used to obtain a specific effect. The Effects-Based Approach (EBA) to operations is a planning methodology that uses a SOSA. The SOSA develops through analysis critical nodes and links and systems of nodes and links in the Political, Military, Economic, Social, Infrastructure, and Informational (PMESII) areas of concern in order to obtain a specific effect. Therefore EBO, EBA and SOSA are all closely interrelated.

## EFFECTS IN HISTORY

Five historical examples have been selected to demonstrate how U.S. Armed Forces have used military operations to achieve effects as their objective prior to this

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<sup>4</sup> Charles T. Kamps, “Effects-Based Operations,” *Aerospace Power Journal* 18, no. 2, (Summer 2004) <http://www.airpower.au.af.mil/airchronicles/apj/apj04/sum04/kamps.html> (accessed 23 October 2007).

<sup>5</sup> Joint Forces Command, Website, “Glossary,” <http://www.jfcom.mil/about/glossary.htm#GoTop> (accessed 23 October 2007).

attempt to codify it. The examples cited include the use of the atomic bombs on Hiroshima and Nagasaki during World War II; the bombing campaigns during the Vietnam War; the bombing campaigns for Operation Desert Shield and Operation Desert Storm; Special Force operations during the Vietnam War; and Military Operations in Urban Terrain during Operation Enduring Freedom.

During the summer of 1945 the United States was facing the harsh realization that to end the war with Japan it was going to be necessary to invade the Japanese mainland or resort to some extraordinary means. On 12 April, the Secretary of War, Henry Stimson suggested such an extraordinary means to Harry S. Truman, who had just taken the oath of office as the President of the United States. Stimson informed Truman that the Manhattan Project was developing an atomic bomb. The objective of this project was to produce a device that would cause the enemy to capitulate rather than continuing the fight. Truman stated in his memoirs, “we labored to construct a weapon of such overpowering force that the enemy could be forced to yield swiftly once we could resort to use it.”<sup>6</sup>

An Interim Committee established by Stimson reviewed options available to them prior to exploring the use of the atomic bomb. The Interim Committee then focused on the effect that the bombs would have, as indicated in their minutes of 31 May 1945. The Interim Committee wrote:

#### VIII. Effect of the Bombing on the Japanese and Their Will to Fight.

It was pointed out that one atomic bomb on an arsenal would not be much different from the effect caused by any Air Corps strike of present

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<sup>6</sup> Edwin Fogelman, *Hiroshima: The Decision to Use the A-Bomb*, 2nd ed. Edited by Martin Steinmann Jr. (New York: M. E. Sharpe, 2005): 9.

dimension. However, Dr. Oppenheimer stated that the visual effect of an atomic bombing would be tremendous. It would be accompanied by a brilliant luminescence which would rise to a height of 10,000 to 20,000 feet. The neutron effect of the explosion would be dangerous to life for a radius of at least two-thirds of a mile.

After much discussion concerning various types of targets and the effects to be produced the Secretary expressed the conclusion, on which there was general agreement, that we could not give the Japanese any warning; that we could not concentrate on a civilian area; but that we should seek to make a profound psychological impression on as many of the inhabitants as possible.<sup>7</sup>

After the successful test of the first nuclear device in New Mexico and the Japanese refusal to the terms of the Potsdam Proclamation, Truman approved the use of the first atomic bomb on Hiroshima, which was dropped on 6 August 1945. Hiroshima was almost completely destroyed; however, the Japanese Emperor and many military and governmental senior officials could not believe that the destruction was done by only one bomb.<sup>8</sup> This was an issue that was considered during the planning for the use of the atomic bomb. It was concluded by the U.S. officials that the Japanese would most likely attempt to explain away the destruction of Hiroshima. "American officials believed hard-liners would minimize the first explosion or attempt to explain it away as some sort of natural catastrophe, precisely what they did. The Japanese minister of war, for instance, at first refused even to admit that the Hiroshima bomb was atomic."<sup>9</sup>

On 9 August Nagasaki was bombed. Finally, on 10 August 1945, the Japanese government communicated their willingness to surrender. The effects of the bombings

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<sup>7</sup> Robert A Strong, *Decisions and Dilemma: Case Studies in Presidential Foreign Policy Making Since 1945* (Armonk, New York: Charles Scribner's Sons, 1964), 21-22.

<sup>8</sup> Bungei Shunju Senshi Kenkyukai. *The Day Man Lost: Hiroshima, 6 August 1945*. 1st ed. The Pacific War Research Society. (Tokyo, Japan and Palo Alto, California: Kodansha International LTD, 1972), 300.

<sup>9</sup> R. Maddox, "The Biggest Decision: Why We Had to Drop the Atomic Bomb," *American Heritage* 46, no. 3, May 1995, [http://www.americanheritage.com/articles/magazine/ah/1995/3/1995\\_3\\_70.shtml](http://www.americanheritage.com/articles/magazine/ah/1995/3/1995_3_70.shtml) accessed 31 August 2007.



resulted in the Japanese capitulating in order to prevent the complete destruction of the Japanese homeland. The operation to use the atomic bomb in August 1945 had achieved as its objective an effect.

Almost two decades later the United States was again looking towards the use of effects as objectives. During the Vietnam War three major strategic bombing campaigns, operations Rolling Thunder, Linebacker I, and Linebacker II were conducted to achieve politically motivated effects, that of reducing the enemy's will to fight.<sup>10</sup> Two of the campaigns, Linebacker I and Linebacker II were also designed to force the North Vietnamese government to return to the negotiating table in order to reach a settlement to the conflict.<sup>11</sup>

After the 1963 coup in South Vietnam, Lyndon B. Johnson faced the daunting task of building a stable non-communist government in South Vietnam. This had to be accomplished without provoking an escalation of the war by causing either China or Russia to enter the conflict to assist North Vietnam.<sup>12</sup> The air campaign developed for this was Operation Rolling Thunder. The operation was authorized by Johnson and commenced on 15 March 1966. The desired effect of the four phased campaign was "the destruction of the North Vietnamese will and capabilities; theoretically, this increasing pressure would compel the Democratic Government of Vietnam to cease providing

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<sup>10</sup> Dennis R. Littrell, "Linebacker II, the December 1972 Vietnam War Air Campaign" (research paper, Carlisle Barracks, PA: U.S. Army War College, 1999), 5, 9, 11.

<sup>11</sup> Phillip S. Michael, "The Strategic Significance of Linebacker II: Political, Military, and Beyond" (research paper, Carlisle Barracks, PA: U.S. Army War College, 2003), 9.

<sup>12</sup> Dennis R. Littrell, "Linebacker II, the December 1972 Vietnam War Air Campaign" (research paper, Carlisle Barracks, PA: U.S. Army War College, 1999), 2.

support to the insurgencies in South Vietnam and Laos.”<sup>13</sup> However, Operation Rolling Thunder in the end failed to achieve President Johnson’s desired effects.

After the election of Richard M. Nixon, the strategy for the conduct of the war was not significantly different until the development of the Vietnamization Program. This policy change would allow for a gradual withdrawal of U.S. Forces as the forces of South Vietnam became more capable. It would also allow the United States to offer assistance as necessary with arms and training.<sup>14</sup> On 30 March 1972, North Vietnamese troops invaded South Vietnam and shortly thereafter, the North Vietnamese walked away from the negotiating table. In response to this new situation, Nixon authorized Operation Linebacker I, a bombing campaign, and a naval blockade, with the political objective of breaking the enemy’s will to fight and eventually cause Hanoi to return to the negotiating table<sup>15</sup>, the desired effect. The North Vietnamese negotiators returned to the peace talks in Paris and on 22 October 1972, Linebacker I ended.<sup>16</sup>

On 13 December 1972, Hanoi once again walked away from the negotiating table. After an unanswered ultimatum to return to the talks, Nixon once again directed a massive air campaign on 15 December. Linebacker II was an all out effort to destroy the enemy’s support mechanisms to wage war and force Hanoi back to the negotiating table.<sup>17</sup> Finally on 29 December, Linebacker II was terminated after Hanoi signaled that

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<sup>13</sup> Phillip S. Michael, “The Strategic Significance of Linebacker II: Political, Military, and Beyond” (research paper, Carlisle Barracks, PA: U.S. Army War College, 2003), 3.

<sup>14</sup> Robert A Strong, *Decisions and Dilemma: Case Studies in Presidential Foreign Policy Making Since 1945* (Armonk, New York: Charles Scribner’s Sons, 1964), 88.

<sup>15</sup> Dennis R. Littrell, “Linebacker II, the December 1972 Vietnam War Air Campaign” (research paper, Carlisle Barracks, PA: U.S. Army War College, 1999), 8.

<sup>16</sup> Ibid., 10.

<sup>17</sup> Ibid., 11.

they were willing to return to the negotiating table and, on 27 January 1973, the Paris Peace Accords were signed.<sup>18</sup>

During each of these operations, the objective was to achieve effects. One of the desired effects of Operation Rolling Thunder was to induce North Vietnam to stop supporting the insurgents in South Vietnam. The desired effects of Operations Linebacker I and Linebacker II were to induce the North Vietnamese government to return to the negotiating table to continue meaningful peace negotiations. All three of these operations had a desired effect of reducing the enemy's will to fight.

While effects were used as objectives in the Vietnam air campaigns as discussed, the term Effects-Based Operations is a product of Operation Desert Shield and Operation Desert Storm. This approach to planning and conducting operations has been credited to then Air Force Colonel John Warden and Lieutenant Colonel Dave Deptula. These officers developed a more pragmatic solution to the typical bombing campaigns and looked to be more efficient and effective by determining the best, most economical approach to servicing targets.<sup>19</sup> The approach to targeting provided the combatant commander with the means of servicing a target, achieve the effect of having it neutralized, and have additional assets remaining to service other targets. For instance, they determined that it was just as effective to destroy the radar systems associated with an Air Defense Artillery site as it was to target the radar and all the missiles. Without the radar, the missiles were useless and therefore not a threat the desired effect. This proved

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<sup>18</sup> Phillip S. Michael, "The Strategic Significance of Linebacker II: Political, Military, and Beyond" (research paper, Carlisle Barracks, PA: U.S. Army War College, 2003), 12.

<sup>19</sup> Christopher J. Castelli, "Van Riper, Mattis Criticize Joint Staff's Force-Development Process," *Inside the Navy* 19, no. 3, 23 January 2006, <http://insidedefense.com/> accessed 7 September 2007.

to be very useful and fruitful throughout Operation Desert Shield and Operation Desert Storm.

Due to the constraints of this paper Special Forces Operations and Military Operations in Urban Terrain will not be discussed in detail. This author submits that the Special Forces Operations and Military Operations in Urban Terrain both are geared towards obtaining effects at the various levels of war. In the case of the Special Forces Operations in their goal to win the “hearts and minds” of the Vietnamese people during the Vietnam War they geared their efforts towards obtaining those effects. The Army’s doctrine for Military Operations in Urban Terrain uses Effects-Based concepts at the tactical level when using concussion grenades for the entry into rooms. This method achieves the desired effect of stunning the occupants to prevent them from engaging the soldiers as they enter.

The previous historical citations are just a few examples of classical military operations using effects as their objectives. History is littered with resplendent examples of the use of effects as objectives. It takes very little imagination to surmise that during the battle of Vicksburg, General Grant’s use of recon in force by Generals McClernand and McPherson to fix General Pemberton in Vicksburg<sup>20</sup> was designed to achieve an effect. Operation Overlord’s deception plans, specifically, the use of false operations plans being placed on a cadaver and set adrift in hopes of being discovered by a German sympathizer, or the use of General Patton with a false headquarters and false communications, or the use of dummy parachutists sought to achieve a desired effect.

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<sup>20</sup> Bret Daugherty, “The Vicksburg Campaign of 1863: A Joint Operation” (research paper, Carlisle Barracks, PA, U.S. Army War College, 2000): 39.

## EFFECTS-BASED AND SOSA DEBATE

The current debate on EBO began with the release of the Commander's Handbook for an Effects-Based Approach to Joint Operations. Following Operation Desert Shield and Operation Desert Storm, a great deal of time, effort, and resources has been devoted to fully developing the concept of EBO. During the planning phases for Operation Desert Shield and Operation Desert Storm, some highly talented officers sought to more efficiently service targets. Many saw EBA as a means of planning and conducting all forms of military operations.<sup>21</sup>

After reading articles written by Milan Vego, Ron Tira, Robert Freniere, Edward Mann, Robert Elder, and Zoltan Jobbagy; some of which are proponents and some opponents for the EBO, this author would submit that there is very little dispute about the utility and necessity for the use of effects as objectives in the classical war scenario. The issue becomes heated when you begin to discuss the ramifications of the SOSA and the resulting analysis. It is at this point where the majority of the concern is shown about levels of predictability and terminology.

The proponents for EBO hold that SOSA allows the commander to more accurately predict the outcome of an event. This is done by diagramming the Political, Military, Economic, Social, Informational, and Infrastructure (PMESII) systems through a series of links and nodes in relation to the other links and nodes thus developing a system of links and nodes. This SOSA is purported to make Joint forces more

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<sup>21</sup> Christopher J. Castelli, "Van Riper, Mattis Criticize Joint Staff's Force-Development Process," *Inside the Navy* 19, no. 3, 23 January 2006, <http://insidedefense.com/> (accessed 7 September 2007).

adaptable<sup>22</sup> by allowing commander to achieve the same objective using less conventional means.

This process can be effective at the tactical level in the execution of Effect-Based Targeting as demonstrated during Operation Desert Shield and Operation Desert Storm. Air Force Colonel John Warden and Lieutenant Colonel Dave Deptula, when working for Lieutenant General Chuck Horner, developed the process of analyzing the number of targets, the number of assets available to service those targets, and then studied the desired effect of the mission.<sup>23</sup> Through the Mission Tasking Order the Coalition Forces were able to target radar systems that when destroyed or damaged rendered the associated missiles harmless. This worked extremely well primarily because closed-looped systems were being targeted for a specific effect, in this case rendering the missiles harmless. They were developing attack strategies for the hardware of the system.

The SOSA at the operational level, however, does not deal primarily with the closed-looped systems. The SOSA also includes wetware, or human interaction and these open-looped systems are highly complex. The operational commander under EBO is responsible for affecting the areas within PMESII national power projection sources, all of which add the human factor into the equation. Because of this unpredictable human factor, this model will not be able to predict with any degree of certainty what the opponent has learned or deduced from any previous encounters.

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<sup>22</sup> Robert J. Elder Jr., "Effects-Based Operations: A Command Philosophy," *Air & Space Power Journal* 21, no. 1, (Spring 2007), <http://www.airpower.maxwell.af.mil/airchronicles/apj/apj07/spr07/elderspr07.html> (accessed 27 September 2007).

<sup>23</sup> "Van Rippers's E-MAIL to Pace, Hagee, and Schoomaker Regarding JCIDS," *Inside the Navy* 19, no. 3, 23 January 2006. <http://insidedefense.com/> accessed 31 August 2007.

Since the SOSA is professed to be a predictive tool to assist the commander in achieving the desired effect, this process in turn becomes an assumption based planning and execution system. At the time the schematic of relationships between the nodes, links, and systems of nodes and links is established, there is a level of certainty that valid relationships have been established.

In opposition to EBO being an assumption based planning and execution system, analysts look at EBO as an opportunity to predict before execution the effect of an EBO event. These predictions are derived through computer modeling that accounts for the enemy as a system as well as the enemy's support systems.<sup>24</sup> Joshua Ho of the Institute of Defence and Strategic Studies, Singapore states, "the networking of resources in the entire war fighting enterprise is proposed as the way in which to master uncertainty and deal with complexity."<sup>25</sup> This draws one to conclude that to provide this level of predictability and deal with the complexity, EBO relies heavily on computerized systems and databases.

However, after the conclusion of the first encounter, engagement, or phase of the operation, the uncertainty of the desired effect must grow exponentially, especially if you are looking for a specific human response. This exponential growth in uncertainty is based on the human factor. Humans will behave differently to the same stimulus and they will learn and cope differently with events as they happen. Therefore, the SOSA assumes that the interrelationships initially developed between the various nodes, links,

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<sup>24</sup> Mark A. Gallagher, Anthony W. Snodgrass, Greg Ehlers, "Input-Output Modeling for Effects Based Operations" (Draft, Military Operations Research Society, 2002), [http://www.mors.org/meetings/ebo/ebo\\_reads/Gallagher\\_Snodgrass\\_Ehlers.pdf](http://www.mors.org/meetings/ebo/ebo_reads/Gallagher_Snodgrass_Ehlers.pdf) (accessed 23 October 2007).

<sup>25</sup> Joshua Ho, "The Advent of a New Way of War : Theory and Practice of Effects Based Operations" IDSS WP No. 57 (working paper, Singapore, Institute of Defence and Strategic Studies, 2003), 10. <http://www.idss.edu.sg/publications/WorkingPapers/WP57.PDF> (accessed 23 October 2007).

and systems of nodes and links will remain fairly constant. If they are not, the effort to recalculate those interrelationships would go on constantly with little being accomplished other than recalculating them, as if in an endless do-loop. This do-loop has the potential to waste the commander's assets by tying up wetware and hardware in an effort to maintain a unobtainable level of predictability, assets the commander cannot afford to waste when conducting operations.

Further, it is assumed under the SOSA that the enemy will react to the encounter, engagement, or phase as you understand that he will and that you fully understand his culture, heritage, and background. As Ron Tira writes:

As such, it is very difficult, if at all possible to determine the way to use the force that will generate the chain of required causal connections to attain the required military objective. In addition, in such a situation the final outcome about whether or not the objectives are achieved is in practice left to the enemy. If the enemy decides to succumb to the effects and if it decides that its cost/benefit calculations do not justify continuing the warfare, the attacker will have achieved the desired military objective. Yet if the enemy elects to remain resolute and defiant, in spite of the destruction of targets and the damages inflicted to its system, then the objective will not be realized.<sup>26</sup>

The System-of-Systems analysts, in short, are attempting to clean up what has been known as the "Fog of War" through mathematical equations and science. This attempt to clean up the "Fog of War" is based on the claims of organizations, units, and individuals that they need more information and more clarity of the situation before they can make a decision.<sup>27</sup> With this perceived need for greater clarity and the SOSA to planning and execution, the entire process becomes very prescriptive. As Milan Vego

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<sup>26</sup> Ron Tira, "The Limitations of Standoff Firepower-Based Operations: On Standoff Warfare, Maneuver, and Decision" INSS Memorandum 90 (working paper, Tel Aviv, Institute for National Strategic Studies, 2007), 22-23.

<sup>27</sup> Grossman, Elaine M. "A Top Commander Acts to Defuse Military Angst on Combat Approach," *Inside the Pentagon* 22, no. 16, 20 April 2006. <http://insidedefense.com/> accessed 31 August 2007.



writes, “EBO and NCW proponents essentially see war as a business. They do not share the Clausewitzian view of the nature of war and have also embraced a deeply flawed systems approach for assessing situations and identifying centers of gravity.”<sup>28</sup>

The SOSA proponents connect nodes and links as well as systems of nodes and links identifying critical weaknesses among the various PMESII areas labeling them as centers of gravity. “Desired effects relate to understanding centers of gravity in systems terms.”<sup>29</sup> However as Vego writes in classical terms, “In a campaign, there is a single theater (or military) strategic center of gravity because there is a single ultimate strategic objective.”<sup>30</sup>

The proponents for the SOSA rely heavily on systems analysis to develop the centers of gravity for the various nodes and links associated with the PMESII areas. The result is a schematic of various nodes and links with highly developed theories on what the effect would be if a particular node or link, or system of nodes and links, was exploited. This is carried on throughout the PMESII areas in order to develop the desired effect rather than completing a particular task or obtaining a specific objective as would a classical military operation.

As shown, the joint community is experiencing unwarranted confusion with the current attempt to codify EBO into doctrine. This confusion is a function of many factors, mostly related to the process that is professed to be predictive but shown to be actually assumptive in nature and uses imprecise terminology. Further, the SOSA may

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<sup>28</sup> Milan N. Vego, “Effects-Based Operations: A Critique,” *Joint Force Quarterly* 41, 2d quarter 2006, 51, [http://www.dtic.mil/doctrine/jel/jfq\\_pubs/4114.pdf](http://www.dtic.mil/doctrine/jel/jfq_pubs/4114.pdf).

<sup>29</sup> Joint Warfighting Center, “An Effects-Based Approach: Refining How We Think about Joint Operations,” *Joint Force Quarterly* 44, 1st quarter 2007, 4, [http://www.ndu.edu/inss/Press/jfq\\_pages/editions/i44/2.pdf](http://www.ndu.edu/inss/Press/jfq_pages/editions/i44/2.pdf).

<sup>30</sup> Milan N. Vego, “Effects-Based Operations: A Critique,” *Joint Force Quarterly* 41, 2d quarter 2006, 55, [http://www.dtic.mil/doctrine/jel/jfq\\_pubs/4114.pdf](http://www.dtic.mil/doctrine/jel/jfq_pubs/4114.pdf).

work well on closed looped systems but it is complicated tremendously by the human factor and may therefore be ineffective.

## **CONCLUSION**

The premise of this discussion on EBO is made on three fundamental positions. First, we have been conducting operations with the objective being an effect for at least half a century. Second, the current debate is really in reference to the SOSA, not necessarily for or against EBO. Lastly, total reliance on this SOSA is not the panacea to all military operations; in fact to do so could be detrimental to an Operational Commander by wasting precious assets. With these three positions confirmed we can then draw conclusions from this analysis.

First, there is no value added by the current attempt to codify EBO into Joint Doctrine. It has been demonstrated that the U.S. Armed Forces plan and execute military operations that have effects as their primary objective and have been doing so for at least half a century.

Second, terminology must be clear and concise to be effectively used as doctrine. The DOD Dictionary lists doctrine as; “(DOD) Fundamental principles that guide the employment of U.S. military forces in coordinated action toward a common objective. Joint doctrine, contained in joint publications, also includes terms, tactics, techniques, and procedures. It is authoritative but requires judgment in application.”<sup>31</sup> For doctrine to work effectively, the terminology used must be clear and concise to prevent confusion. Many of the terms previously defined and indoctrinated are now being rewritten with new meanings that are creating turmoil within the community. As a case in point under EBO there is no longer a single center of gravity but each system and system-of-systems

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<sup>31</sup> DOD Dictionary, Website, <http://www.dtic.mil/doctrine/jel/doddict/> (accessed 31 August 2007).

has its own center of gravity. This author would submit that in classical terms the Operational Commander can have only one center of gravity. Therefore, every effort must be made to conform to existing doctrinal terms and definitions, this will allow new concepts, approaches, or planning tools to be clearly understood and accepted as part of the existing processes.

Lastly, the SOSA could be a valuable tool for the tactical contingency planner as part of Standard Operating Procedures within Service Doctrine. However, due to the time required to develop the PMESII nodes, links, and systems of nodes and links as well as the complexities of the SOSA, consideration should be given for the use of this approach primarily in phases 0, 4, and 5<sup>32</sup> at the tactical level. During phase 0 the tactical planner generally has the time, energy and resources available to develop the best case scenario for the PMESII areas of interest. Many of these areas considered under the SOSA should have been given consideration under the classical military scenario for contingency planning. The causal relationships are the missing pieces provided by this approach and may prove extremely valuable for the commander during the execution of his plans, through out the range of military operations in phase 0–5.

The preceding analysis showed that there is a high level of complexity associated with the SOSA. Further it showed that time was a precious commodity that may be wasted through the continual recalculation of the systems under the SOSA. This continual recalculation is further complicated by the human factor and may become unmanageable specifically during phases 1-3. During phases 4-5, the causal effects of

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<sup>32</sup> Joint Publication 3.0, Joint Operations, dated 17 September 2006, describes the operational plan six phase model on pages IV 26-29, as Phase 0, Shape; Phase 1, Deter; Phase 2, Seize Initiative; Phase 3, Dominate; Phase 4, Stabilize; and Phase 5, Enable Civil Authority.

operations can be explored more readily by the commander because typically he would have more time and assets available to him for the analysis and recalculations to be effective in operations.

Under the Joint Operational Planning Process, the Military Decision Making Process is conducted under the Mission Tasking Order method. This process subscribes to the construct that the Mission, End-State, and Objective provide the commander with the necessary guidance to meet the mission requirements while the tasks provide the necessary means to meet the mission. The proponents for the SOSA indicated that the classical approach is too rigid and does not allow the commander the flexibility to accomplish the desired effect. However, history shows that commanders have been successfully using the classical methods to conduct EBO at all levels, from tactical to the strategic, throughout the full range of military operations.

## **RECOMMENDATIONS**

This paper proved that planning for military operations with “effects” as their objective has been conducted by the U.S. Armed Forces for at least the last half century. Based on the fact that we have used the current military planning model to plan and conduct operations with “effects” as their objective, the Commander’s Handbook for an Effects-Based Approach to Joint Operations should be withdrawn as there is no value added to the Joint community.

This paper concluded that the System-of-Systems Approach is creating turmoil within the Joint community because the process is not predictive but assumptive and the terminology is not clear and concise. The complexities associated with the SOSA at the operational and strategic levels become almost unmanageable due to wetware. The

SOSA should be used as a Intelligence Preparation of the Battlefield tool for tactical contingency planners, specifically in phases 0, 4, and 5, and should be included in service specific doctrine.

Finally, to alleviate some of the confusion associated with new processes or doctrine, those that develop these new processes or doctrine must strictly adhere to terminology as defined and understood.

The fact that Effects-Based Operational terms and principles are creeping into the current military day-to-day life, lexicon, doctrine and operations is a given fact even though it is in a “pre-doctrinal” phase. Take for instance the recent guidance issued by the Chairman, Joint Chiefs of Staff, Admiral M. G. Mullen; “Effects-Based Thinking. Effects-based thinking requires us to begin each new task with the end state clearly in mind. It allows us to continually monitor progress against a discrete set of metrics, reallocating resources or effort as required to achieve concisely stated desired effects.”<sup>33</sup> This concept of EBO, EBA and the System-of-Systems Approach is one that will affect the joint community’s efforts for the foreseeable future. Our efforts must be focused in such a manner that EBO, EBA and the SOSA allows the operational commander to focus on his objective.

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<sup>33</sup> Admiral M. G. Mullen, Chairman, Joint Chiefs of Staff, CJCS Guidance for 2007-2008, 1 October 2007.

## Bibliography

### Books

- Fogelman, Edwin. *Hiroshima: The Decision to Use the A-Bomb*, 2nd ed. Edited by Martin Steinmann Jr., New York: M. E. Sharpe, 2005.
- Kenkyukai, Bungei Shunju Senshi. *The Day Man Lost: Hiroshima, 6 August 1945*. 1st ed. The Pacific War Research Society, Tokyo, Japan and Palo Alto: California, Kodansha International LTD, 1972.
- Strong, Robert A. *Decisions and Dilemma: Case Studies in Presidential Foreign Policy Making Since 1945*. Armonk, New York: Charles Scribner's Sons, 1964.

### Papers

- Beagle, T. W. "Effects-Based Targeting: Another Empty Promise?" Research paper, Air Command and Staff College, School of Advanced Airpower Studies, Air University (U.S.), 2001.
- Daugherty, Bret. "The Vicksburg Campaign of 1863: A Joint Operation, (research paper, Carlisle Barracks, PA, U.S. Army War College, 2000).
- Dillard, Tommy, Jr. "The Leadership Decision and Necessity to Use Nuclear Weapons to End World War II" Research paper, Maxwell AFB, AL: Air War College, 1994.
- Gallagher, Mark A., Snodgrass, Anthony W., Ehlers, Greg. "Input-Output Modeling for Effects Based Operations". Draft, Military Operations Research Society, 2002. [http://www.mors.org/meetings/ebo/ebo\\_reads/Gallagher\\_Snodgrass\\_Ehlers.pdf](http://www.mors.org/meetings/ebo/ebo_reads/Gallagher_Snodgrass_Ehlers.pdf) (accessed 23 October 2007).
- Ho, Joshua. "The Advent of a New Way of War : Theory and Practice of Effects Based Operations", IDSS WP No. 57. Working paper, Singapore, Institute of Defence and Strategic Studies, 2003. <http://www.idss.edu.sg/publications/WorkingPapers/WP57.PDF> (accessed 23 October 2007).
- Littrell, Dennis R. "Linebacker II, the December 1972 Vietnam War Air Campaign" Research paper, Carlisle Barracks, PA: U.S. Army War College, 1999.
- Michael, Phillip S. "The Strategic Significance of Linebacker II : Political, Military, and Beyond." Research paper, Carlisle Barracks, PA: U.S. Army War College, 2003.
- Tira, Ron. "The Limitations of Standoff Firepower-Based Operations: On Standoff Warfare, Maneuver, and Decision," INSS Memorandum 90. Working paper, Tel Aviv, Institute for National Strategic Studies, 2007.

## Periodicals

- Castelli, Christopher J. "Van Riper, Mattis Criticize Joint Staff's Force-Development Process," *Inside the Navy* 19, no. 3, 23 January 2006. <http://insidedefense.com/> accessed 31 August 2007.
- Castelli, Christopher J. "Van Riper, Deptula Disagree Over Effects-Based Ops, Enemy 'Control'," *Inside the Navy* 19, no. 5, 6 February 2006. <http://insidedefense.com/> accessed 31 August 2007.
- Castelli, Christopher J. "General: DOD's Force-Development Process Getting 'A Lot of Review'," *Inside the Navy* 19, no. 4, 30 January 2006. <http://insidedefense.com/> accessed 31 August 2007.
- "Van Riper's E-MAIL to Pace, Hagee, and Schoomaker Regarding JCIDS," *Inside the Navy* 19, no. 3, 23 January 2006. <http://insidedefense.com/> accessed 31 August 2007.
- "Deptula's Reply to Van Riper's Concerns" *Inside the Navy* 19, no. 3, 23 January 2006. <http://insidedefense.com/> accessed 31 August 2007.
- "Van Riper's Reply to Deptula, Dec. 29, 2005," *Inside the Navy* 19, no. 5, 6 February 2006. <http://insidedefense.com/> accessed 31 August 2007.
- Grossman, Elaine M. "A Top Commander Acts to Defuse Military Angst on Combat Approach," *Inside the Pentagon* 22, no. 16, 20 April 2006. <http://insidedefense.com/> accessed 31 August 2007.
- Elder, Robert J. Jr. "Effects-Based Operations: A Command Philosophy," *Air & Space Power Journal* 21, no. 1, (Spring 2007): 10-19.  
<http://www.airpower.maxwell.af.mil/airchronicles/apj/apj07/spr07/elderspr07.html>  
accessed 27 September 2007.
- Freniere, Robert W., Dickmann, John Q., Cares, Jeffrey R. "Complexity-Based Targeting: New Sciences Provide Effects," *Air & SpacePower Journal* 17, no. 1, (Spring 2003).  
<http://www.airpower.maxwell.af.mil/airchronicles/apj/apj03/spr03/freniere.html>  
accessed 31 August 2007.
- Jobbagy, Zoltan. "Effects-Based Operations and the Problem of Causality," *Joint Force Quarterly* 46, (3d quarter 2007): 90-95.  
[http://www.ndu.edu/inss/Press/jfq\\_pages/editions/i46/14.pdf](http://www.ndu.edu/inss/Press/jfq_pages/editions/i46/14.pdf) accessed 27 September 2007.

Joint Warfighting Center. "An Effects-Based Approach: Refining How We Think about Joint Operations," *Joint Force Quarterly* 44 (1st quarter 2007): 1-6.  
[http://www.dtic.mil/doctrine/jel/jfq\\_pubs/4114.pdf](http://www.dtic.mil/doctrine/jel/jfq_pubs/4114.pdf).

Kamps, Charles T. "Effects-Based Operations," *Aerospace Power Journal* 18, no. 2, (Summer 2004).  
<http://www.airpower.au.af.mil/airchronicles/apj/apj04/sum04/kamps.html> accessed 23 October 2007.

Maddox, R. "The Biggest Decision: Why We Had to Drop the Atomic Bomb," *American Heritage* 46, no. 3, May 1995.  
[http://www.americanheritage.com/articles/magazine/ah/1995/3/1995\\_3\\_70.shtml](http://www.americanheritage.com/articles/magazine/ah/1995/3/1995_3_70.shtml) accessed 31 August 2007.

Mann, Edward, Endersby, Gary, Searle, Tom. "Dominant Effects: Effects-Based Joint Operations," *Aerospace Power Journal* 15, no. 3, (Fall 2001).  
<http://www.airpower.maxwell.af.mil/airchronicles/apj/apj01/fal01/vorfal01.html> accessed 31 August 2007.

Vego, Milan N. "Effects-Based Operations: A Critique," *Inside the Navy* 19, no. 3 (23 January 2006): 51-57. [http://www.dtic.mil/doctrine/jel/jfq\\_pubs/4114.pdf](http://www.dtic.mil/doctrine/jel/jfq_pubs/4114.pdf).

#### Memorandum

Mullen, Admiral M. G. Chairman, Joint Chiefs of Staff. CJCS Guidance for 2007-2008, 1 October 2007.

#### Military Manuals

Joint Warfighting Center, Joint Concept Development and Experimentation Directorate. *Commander's Handbook for an Effects-Based Approach to Joint Operations*. Suffolk, VA: SJFH, 24 February 2006.

Joint Publication 3-0, *Joint Operations*, 17 September 2006.  
[http://www.dtic.mil/doctrine/jel/new\\_pubs/jp3\\_0.pdf](http://www.dtic.mil/doctrine/jel/new_pubs/jp3_0.pdf) accessed 31 August 2007.

#### Web Sites

Joint Forces Command, Website, "Glossary."  
<http://www.jfcom.mil/about/glossary.htm#GoTop> (accessed 23 October 2007).

DOD Dictionary, Website. <http://www.dtic.mil/doctrine/jel/doddict/> (accessed 31 August 2007).